

Title (en)

Variant Axmi-R1 delta-endotoxin genes and methods for their use

Title (de)

Varianten der Axmi-R1-delta-Endotoxingene und Anwendungsverfahren dafür

Title (fr)

Gène de delta-endotoxine Axmi-R1 variant et procédés pour l'utiliser

Publication

EP 2728007 A2 20140507 (EN)

Application

EP 14153319 A 20100205

Priority

- US 15030909 P 20090205
- US 22956709 P 20090729
- EP 10703770 A 20100205

Abstract (en)

Compositions and methods for conferring pesticidal activity to bacteria, plants, plant cells, tissues and seeds are provided. Compositions comprising a coding sequence for pesticidal polypeptides are provided. The coding sequences can be used in DNA constructs or expression cassettes for transformation and expression in plants and bacteria. Compositions also comprise transformed bacteria, plants, plant cells, tissues, and seeds. In particular, nucleic acid molecules encoding variant Cry3 sequences are provided. Additionally, amino acid sequences corresponding to the polynucleotides are encompassed.

IPC 8 full level

A01H 5/00 (2006.01); **C07K 14/325** (2006.01); **C12N 15/82** (2006.01)

CPC (source: EP US)

C07K 14/325 (2013.01 - EP US); **C12N 15/8286** (2013.01 - EP US); **Y02A 40/146** (2017.12 - EP US)

Citation (applicant)

- US 5659123 A 19970819 - VAN RIE JEROEN [BE], et al
- US 6023013 A 20000208 - ENGLISH LEIGH H [US], et al
- US RE39580 E 20070417 - ENGLISH LEIGH H [US], et al
- US 7030295 B2 20060418 - CHEN ERIC [US], et al
- US 5743477 A 19980428 - WALSH TERENCE A [US], et al
- US 4196265 A 19800401 - CROCE CARLO M [US], et al
- US 5605793 A 19970225 - STEMMER WILLEM P C [US]
- US 5837458 A 19981117 - MINSHULL JEREMY [US], et al
- US 5380831 A 19950110 - ADANG MICHAEL J [US], et al
- US 5436391 A 19950725 - FUJIMOTO HIDEYA [JP], et al
- US 2001026941 A1 20011004 - HELD BRUCE MARVIN [US], et al
- US 4945050 A 19900731 - SANFORD JOHN C [US], et al
- WO 9100915 A1 19910124 - BIOTECHNOLOGY RES & DEV [US]
- US 2002015066 A1 20020207 - SIWINSKI MICHAEL J [US], et al
- US 5039523 A 19910813 - PAYNE JEWEL [US], et al
- EP 0480762 A2 19920415 - MYCOGEN CORP [US]
- US 6468523 B1 20021022 - METTUS ANNE-MARIE LIGHT [US], et al
- US 7351881 B2 20080401 - CAROZZI NADINE [US], et al
- WO 0138514 A2 20010531 - MIDWEST OILSEEDS INC [US]
- US 5240842 A 19930831 - METS LAURENS J [US]
- FEITELSON: "Advanced Engineered Pesticides", 1993, MARCEL DEKKER, INC., article "The Bacillus Thuringiensis family tree"
- CRICKMORE ET AL., MICROBIOL. MOL. BIOL. REV., vol. 62, 1998, pages 807 - 813
- HOFTE; WHITELEY, MICROBIOL. REV., vol. 53, 1989, pages 242 - 255
- DE MAAGD ET AL., TRENDS GENETICS, vol. 17, 2001, pages 193 - 199
- HERMSTADT ET AL., GENE, vol. 57, 1987, pages 37 - 46
- HOFTE ET AL., NUCLEIC ACIDS RES., vol. 15, 1987, pages 7183
- MCPHERSON ET AL., BIO/TECHNOLOGY, vol. 6, 1988, pages 61 - 66
- SEKAR ET AL., PROC. NATL. ACAD. SCI. USA, vol. 84, 1987, pages 7036 - 7040
- DONOVAN ET AL., MOL GEN GENET., vol. 214, no. 3, 1988, pages 365 - 72
- CRICKMORE ET AL., BACILLUS THURINGIENSIS TOXIN NOMENCLATURE, 2003, Retrieved from the Internet <URL:www.biols.susx.ac.uk/Home/Neil_Crickmore/Bt/index>
- LI ET AL., NATURE, vol. 353, 1991, pages 815 - 821
- WU; DEAN, J.MOL. BIOL., vol. 255, 1996, pages 628 - 640
- WU ET AL., FEBS LETTERS, vol. 473, 2000, pages 227 - 232
- WALTERS ET AL.: "Cathepsin G cleavage site" (or a "chymotrypsin/Cathepsin G cleavage site", APPLIED AND ENVIRON. MICRO., vol. 74, 2008, pages 367 - 374
- CARROLL ET AL., BIOCHEM J., vol. 261, 1989, pages 99 - 105
- CARROLL ET AL., J INVERT. BIOL., vol. 70, 1997, pages 41 - 49
- CZAPLA; LANG, J. ECON. ENTOMOL., vol. 83, 1990, pages 2480 - 2485
- ANDREWS ET AL., BIOCHEM. J., vol. 252, 1988, pages 199 - 206
- MARRONE ET AL., J. OF ECONOMIC ENTOMOLOGY, vol. 78, 1985, pages 290 - 293
- WALTERS ET AL., APPLIED AND ENVIRON. MICRO., vol. 74, 2008, pages 367 - 374
- KARLIN; ALTSCHUL, PROC. NATL. ACAD. SCI. USA, vol. 87, 1990, pages 2264
- KARLIN; ALTSCHUL, PROC. NATL. ACAD. SCI. USA, vol. 90, 1993, pages 5873 - 5877
- ALTSCHUL ET AL., J. MOL. BIOL., vol. 215, 1990, pages 403
- ALTSCHUL ET AL., NUCLEIC ACIDS RES., vol. 25, 1997, pages 3389
- HIGGINS ET AL., NUCLEIC ACIDS RES., vol. 22, 1994, pages 4673 - 4680
- MYERS; MILLER, CABIOS, vol. 4, 1988, pages 11 - 17
- NEEDLEMAN; WUNSCH, J. MOL. BIOL., vol. 48, no. 3, 1970, pages 443 - 453

- SAMBROOK; RUSSELL: "Molecular Cloning: A Laboratory Manual.", 2001, COLD SPRING HARBOR LABORATORY PRESS, COLD SPRING HARBOR
- INNIS ET AL.: "PCR Protocols: A Guide to Methods and Applications", 1990, ACADEMIC PRESS
- SAMBROOK ET AL.: "Molecular Cloning: A Laboratory Manual", 1989, COLD SPRING HARBOR LABORATORY PRESS, COLD SPRING HARBOR
- MEINKOTH; WAHL, ANAL. BIOCHEM., vol. 138, 1984, pages 267 - 284
- TIJSSEN: "Laboratory Techniques in Biochemistry and Molecular Biology-Hybridization with Nucleic Acid Probes", 1993, ELSEVIER
- "Current Protocols in Molecular Biology", 1995, GREENE PUBLISHING AND WILEY-INTERSCIENCE
- HARLOW; LANE: "Antibodies: A Laboratory Manual", 1988, COLD SPRING HARBOR LABORATORY, COLD SPRING HARBOR
- MARRONE ET AL., J. OF ECONOM#C ENTOMOLOGY, vol. 78, 1985, pages 290 - 293
- SCHNEPF ET AL., MICROBIOL. MOL. BIOL. REV., vol. 62, 1998, pages 775 - 806
- STEMMER, PROC. NATL. ACAD. SCI. USA, vol. 91, 1994, pages 10747 - 10751
- STEMMER, NATURE, vol. 370, 1994, pages 389 - 391
- CRAMERI ET AL., NATURE BIOTECH., vol. 15, 1997, pages 436 - 438
- MOORE ET AL., J. MOL. BIOL., vol. 272, 1997, pages 336 - 347
- ZHANG ET AL., PROC. NATL. ACAD. SCI. USA, vol. 94, 1997, pages 4504 - 4509
- CRAMERI ET AL., NATURE, vol. 391, 1998, pages 288 - 291
- NAIMOV ET AL., APPL. ENVIRON. MICROBIOL., vol. 67, 2001, pages 5328 - 5330
- DE MAAGD ET AL., APPL. ENVIRON. MICROBIOL., vol. 62, 1996, pages 1537 - 1543
- GE ET AL., J. BIOL. CHEM., vol. 266, 1991, pages 17954 - 17958
- SCHNEPF ET AL., J. BIOL. CHEM., vol. 265, 1990, pages 20923 - 20930
- RANG ET AL., APPL. ENVIRON. MICROBIOL., vol. 65, 1999, pages 2918 - 2925
- CHANG, METHODS ENZYMOL., vol. 153, 1987, pages 507 - 516
- HELLENS; MULLINEAUX, TRENDS IN PLANT SCIENCE, vol. 5, 2000, pages 446 - 451
- GUERINEAU ET AL., MOL. GEN. GENET., vol. 262, 1991, pages 141 - 144
- PROUDFOOT, CELL, vol. 64, 1991, pages 671 - 674
- SANFACON ET AL., GENES DEV., vol. 5, 1991, pages 141 - 149
- MOGEN ET AL., PLANT CELL, vol. 2, 1990, pages 1261 - 1272
- MUNROE ET AL., GENE, vol. 91, 1990, pages 151 - 158
- BALLAS ET AL., NUCLEIC ACIDS RES., vol. 17, 1989, pages 7891 - 7903
- JOSHI ET AL., NUCLEIC ACID RES., vol. 15, 1987, pages 9627 - 9639
- CAMPBELL; GOWRI, PLANT PHYSIOL., vol. 92, 1990, pages 1 - 11
- MURRAY ET AL., NUCLEIC ACIDS RES., vol. 17, 1989, pages 477 - 498
- VON HEIJNE ET AL., PLANT MOL. BIOL. REP., vol. 9, 1991, pages 104 - 126
- CLARK ET AL., J. BIOL. CHEM., vol. 264, 1989, pages 17544 - 17550
- DELLA-CIOPPA ET AL., PLANT PHYSIOL., vol. 84, 1987, pages 965 - 968
- ROMER ET AL., BIOCHEM. BIOPHYS. RES. COMMUN., vol. 196, 1993, pages 1414 - 1421
- SHAH ET AL., SCIENCE, vol. 233, 1986, pages 478 - 481
- HIEI ET AL., THE PLANT JOURNAL, vol. 6, 1994, pages 271 - 282
- ISHIDA ET AL., NATURE BIOTECHNOLOGY, vol. 14, 1996, pages 745 - 750
- AYRES; PARK, CRITICAL REVIEWS IN PLANT SCIENCE, vol. 13, 1994, pages 219 - 239
- BOMMINENI; JAUHAR, MAYDICA, vol. 42, 1997, pages 107 - 120
- SVAB ET AL., PROC. NATL. ACAD. SCI. USA, vol. 87, 1990, pages 8526 - 8530
- SVAB; MALIGA, PROC. NATL. ACAD. SCI. USA, vol. 90, 1993, pages 913 - 917
- SVAB; MALIGA, EMBO J., vol. 12, 1993, pages 601 - 606
- MCBRIDE ET AL., PROC. NATL. ACAD. SCI. USA, vol. 91, 1994, pages 7301 - 7305
- MCCORMICK ET AL., PLANT CELL REPORTS, vol. 5, 1986, pages 81 - 84
- SAMBROOK; RUSSELL: "Molecular Cloning: A Laboratory Manual.", 2001, COLD SPRING HARBOR LABORATORY PRESS
- STALKER ET AL., J. BIOL. CHEM., vol. 263, 1985, pages 6310 - 6314
- SATHASIVAN ET AL., NUCL. ACIDS RES., vol. 18, 1990, pages 2188
- "Pesticide bioassays with arthropods", 1992, CRC
- MILLER ET AL., PLANT PHYSIOLOGY, vol. 127, 2001, pages 594 - 606

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

Designated extension state (EPC)

AL BA RS

DOCDB simple family (publication)

US 2010197592 A1 20100805; US 8299217 B2 20121030; AR 075371 A1 20110330; BR PI1007915 A2 20150218; BR PI1007915 B1 20190514; CA 2751409 A1 20100812; CA 2751409 C 20200630; CN 102369286 A 20120307; CN 102369286 B 20141210; EA 201171006 A1 20120330; EP 2393929 A1 20111214; EP 2728007 A2 20140507; EP 2728007 A3 20140514; EP 2728007 B1 20170125; HU E032178 T2 20170928; JP 2012516700 A 20120726; JP 6009165 B2 20161019; MX 2011008246 A 20110906; WO 2010091230 A1 20100812; ZA 201105749 B 20130529

DOCDB simple family (application)

US 70105810 A 20100205; AR P100100330 A 20100205; BR PI1007915 A 20100205; CA 2751409 A 20100205; CN 201080011962 A 20100205; EA 201171006 A 20100205; EP 10703770 A 20100205; EP 14153319 A 20100205; HU E14153319 A 20100205; JP 2011549274 A 20100205; MX 2011008246 A 20100205; US 2010023291 W 20100205; ZA 201105749 A 20110804